

IN THE CLAIMS

1. (currently amended) In a spraying system of an air intake duct of a piston engine for humidification of intake air for the piston engine to reduce nitrogen oxide emissions, the improvements comprising:

at least one nozzle (9,10, 11,12, 13) for spraying a mist of an aqueous liquid into the air intake duct (2);

~~means for adjusting a temperature of the aqueous liquid for the spraying; and~~

means for accomplishing the spraying of the mist of the aqueous liquid in dependence on at least one of load, speed of rotation or temperature of the engine, characterized in that the system comprises nozzles (9,10,11,12, 13) having different properties, the number and/or type of nozzles spraying being varied according to the amount of liquid required.

2. (previously presented) Spraying system according to claim 1, characterized in that the mist sprayed into the air intake duct (2) is distributed by several of the nozzles (9,10, 11,12, 13).

3. (previously presented) Spraying system according to claim 1, characterized in that the mist sprayed is at least one of distributed in the air intake duct (2) over an area or to points with a higher temperature or air flow than their vicinity for optimizing vaporization.

4. (previously presented) Spraying system according to claim 1, characterized in that a number of the nozzles (9,10, 11,12, 13) is adapted according to an amount of liquid to be sprayed.

5. (currently amended) Spraying system according to claim 1, characterized by means for adapting at least one of a point of or direction of the spray of the mist according to an amount of the aqueous liquid to be sprayed.

6. (canceled)

7. (previously presented) System according to claim 1, characterized in that the several nozzles (9-13) in the system are arranged on the same mounting frame (6,7).

8. (previously presented) System according to claim 1, characterized in that the system comprises a regulating apparatus, by means of which the injection action of at least some of the nozzles (9-13) can be controlled.

9. (previously presented) System according to claim 1, characterized in that the system comprises at least one valve element (13, 14), by means of which the liquid flow passage leading to one of the nozzles (9-13) is adjusted and/or opened/closed.

10. (previously presented) System according to claim 1, characterized in that the system comprises a regulating system, by means of which the pressure in at least one supply pipe (17) leading to the nozzles is kept at least nearly constant or at a predetermined level independently of the output of the pump.

11. (previously presented) System according to claim 1, characterized in that the system comprises an output regulating pump unit, by means of which the pressure is regulated by pressure control so that the pressure in at least one supply pipe (17) leading to a nozzle is constant.

12. (previously presented) System according to claim 1, characterized in that the system comprises a control system comprising a constant- output pump and controlling the pressure by means of a valve system to maintain a constant pressure in at least one supply pipe leading to a nozzle.

13. (previously presented) System according to claim 1, characterized in that the system further comprises a system for cleaning the nozzles and/or keeping the nozzles clean.

14. (previously presented) System according to claim 1, characterized in that the pressure in the liquid supply piping is 10-300 bar.

15. (previously presented) System according to claim 1, characterized in that the droplet size of the water mist is typically below 200 micrometers.

16. (previously presented) System according to claim 1, characterized by means for supplying at least one of a pressure medium, gas, or air to the at least one nozzle.

17. (currently amended) System Apparatus according to claim 1, characterized by means for controlling the adjusting of the temperature of the liquid .

18. (canceled)

19. (new) System according to claim 1, and comprising means for adjusting a temperature of the aqueous liquid for the spraying.